Industrial Finishing

Reg. U. S. Pat. Off.

Devoted to Product Finishing in the Factory

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Letters — from I. F. Readers

The names and addresses of those whose letters and inquiries appear in this department may be had by writing this office, or letters addressed to them in care of this office will be forwarded promptly.—The Editor

One-Coat Enamel

Will you kindly advise us whether there are, to your knowledge, companies manufacturing and selling a One-Coat enamel that dries free from brush marks, and dries within four to five hours? We are aware of the existence of "Nu-Enamel" but we are trying to locate other manufacturers in the United States making a similar product, and claiming the same advantages and merits as the "Nu-Enamel." We have been constant readers of your magazine . . . .—K. B. C. & Co. (Importers, Commission Merchants.)

Buff Carvings?

We finish a great many small carved wood parts such as small carvings, carved legs for davenports and chairs, and various kinds of facings for upholstered furniture. At the present time, we are dipping these pieces and are then sanding them by hand.

The thought occurred to us that there might be some sort of a buffing wheel which might be used to better advantage than sanding by hand. We use a water stain which raises the grain somewhat, and this buffing operation would have to be such that it would cut down the raised grain.

If you know of any manufacturer making a buffing wheel of any material which might be suitable for this, will you please advise?—O. G. J. Co. (Furniture.)

Toy Dipping Enamel

In the January issue of INDUSTRIAL FINISHING, under the title "Developments During 1932" (page 7), mention is made of a "Toy Dipping Enamel." Will you kindly let me know the name of the manufacturer of this enamel?—J. E. D.

Glaze for Photographs

We have been using a varnish . . . . which we mix with naphtha and spray on our photos, and we find that while it takes about 20 minutes to dry with a heater, the pictures take on dust and when dried with dust, they look terrible.

The effect we are really after is a glaze like glass, or at least like a coating of cellophane or cellulose. Is there anything that you can recommend that will dry fast and give an extra high gloss? Lacquer—that is the ordinary lacquer—will not do it so well. What do you suggest? We have a regular spray booth and sprayers. Would like something that will not give it a chance to take on the dust.

Years ago there was a method of

A 4-STAR Steel Sheet

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★ 2. A hot dip, heat treated zinc coating is *bonded* to the base metal rendering it rust-resisting to an unusual degree.

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The Superior Sheet Steel Company
Canton, Ohio

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burnishing photos and we would like to learn something about this method if possible.

We are in a position to finance a new proposition in the coloring or finishing line, as our business has been dead for the past two years, so if you run across someone who has a profitable idea, we will back it.—X. Z. Art Studios (Pictures & Frames.)

Baked Enamel Graining

Where can we get equipment to produce a grained finish in baked enamel?

Can you inform us how the white spotted or flecked effect is obtained, like what the porcelain enameled washing machines are finished in?—O. Enamel Co.

Aluminum Paints

I have read an article in your INDUSTRIAL FINISHING journal of July last on Aluminum Paints by W. S. McArdle of Aluminum Co. of America, and as I do not know the address of the company may I request you to ask them to send me their quotations for export to India, with any literature they have on the subject. —S. C. D.

Drum Pumps

On page 12 of your September issue of INDUSTRIAL FINISHING, we note an article on drum pumps. We are interested in obtaining more information on these and are wondering if you can help us out.—T. F. Inc. (Sanitary Equipment.)

Sandblast Outfit Offered

We note in September issue (page 25) that one of your readers wishes to buy a sandblast outfit. We have a complete outfit (second hand) which we will sell for one third the amount we paid for it. It is in first class condition.—S. B. Stove Co.

Heat Resistant Paint

I have need for a heat resistant "paint" pigment in color black. Can you help me find one?—D. M. O.

Tumbling Machine

In your May issue of INDUSTRIAL FINISHING there is shown on page 12

a tumbling machine, and an article regarding the uses and advantages of a tumbler. I should like to know the name of the manufacturer of this machine. Will you please have them send me a copy of the specifications and the price of same?—R. R. H., Buenos Aires, Argentine, S. A. (U. S. Mfr's. Representative.)

Small Sandblaster

Could you inform me where I can buy a small sandblaster for removing old paint from automobiles?—H. Auto Painting Co.

Barrel Tilter

There is an outfit by the name of Farrington which makes a barrel tilting device. Address is somewhere in Pennsylvania. Will you kindly give me the full name and exact location?—B. K. M.

Answer: C. E. Farrington Co., Phoenixville, Pa.

Crystal Lacquer

We are finishing quite a line of fancy work and are using a crystal lacquer, but we do not get the crystal effect large enough. Can you tell us why? What ingredient should be increased to produce larger crystal flakes?—F. G. W.

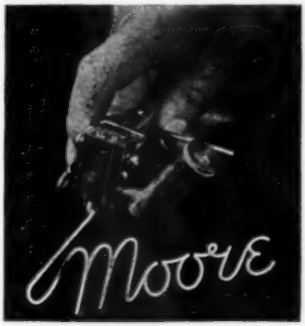
Transparent Finish

We want a lacquer or varnish to use on glass that will dry or bake hard and still be perfectly transparent. Who makes it?— D. F. T. Co. (Eye Protectors.)

November Furniture Show

The combined mid-season market and code conference at the American Furniture Mart, Chicago, set for November 6 to 11, inclusive, promises to set a new attendance record for November shows, due to the many factors that will bring buyers to Chicago, in the opinion of Mart exhibitors.

The Mart is definitely pledged to a January-July market schedule, but both last spring and this fall exhibitors have felt that there was a real need for an official mid-season show. The regular winter market will be held January 2 to 13, 1934.



FOUNTAIN STRIPERS A SUCCESS

"We made great strides in improving quality and appearance after using your equipment on enamel products," writes a typical user.

Finishing shops of all kinds make similar reports. Some talk of money saved, some about tripled production per man, some about cleaner lines, some about simplicity in design and operation.

Indestructible and fool-proof, a Moore Fountain Striper handles any material, makes 300 to 1500 feet of line on one filling. Made in several sizes. May be used on wood, metal and glass. Make a start toward saving money — write for complete information and names of enthusiastic users.

DISTRIBUTORS

We are increasing our factory capacity and distributor organization. Inquiries are invited from distributors specializing in specific trades.

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Moore Fountain Striper Division

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Users say

"Smoothest working gun that was ever made"
"Maintains a fine atomization of material"
"I am sold on this new gun 100%"

● **Management and operators alike are enthusiastic in their praise of the new DeVilbiss Type MB Spray Gun with Feather-Touch Control... It's undoubtedly the most easily operated spray gun ever designed. And it gives better results, saves time and material... While the Type MB offers many new improvements, it also further develops the patented, basic features which make DeVilbiss Guns so efficient, economical and durable... Ask your local DeVilbiss representative for full details—or write us direct.**

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How One Firm « Cut Finishing Costs »

by C. F. Scribner
Industrial Engineer

"... . based upon an experience of a concern that decided something must be done to offset the rising cost of production.

"Any progressive plant manager will agree that everything in this article is of practical value to his establishment — and he can get similar results himself without outside assistance."

THE RISE in finishing costs occasioned by higher wages, shorter hours and advances in the prices of finishing materials has spurred managers to study closely their means of finish application in order to reduce production costs.

Tangible benefits from mechanical methods of finish application, in labor and materials as well as in improvement in product quality, even in the small plant, have long been recognized.

One small plant obtained substantial cost reduction with the introduction of spraying equipment and was confronted with an increased demand for its product. Before undertaking plant extension and equipment investment the manager decided to check up on the equipment already installed to see if it was being used to the best advantage.

The results of this investigation showed that numerous small losses were being sustained, among which were the following:

1) Equipment was in actual use less than one-half the working day. Waiting for work caused many delays.

2) No helper had been assigned to work with the spray operator. Stopping of work was frequent in changing from one unit to the next.

3) The drying room was not conditioned as to temperature, circulation and humidity. Drying time was too long, and too many "off" days decreased output.

4) Piece rates had been set by the foreman on the basis of past performance. Output was restricted by operators to prevent any reduction of the rates.

5) No standards for material usage had been set. The consumption of valuable finishing materials was excessive.

The first step taken to correct these conditions was to provide a helper for each spray unit. This helper brought up the work, assisted in its removal, went after finishing materials, and did everything possible to keep the spray operator busy turning out production. Gravity conveyors were installed to facilitate taking away the work. The time between units was reduced, as was the time

required to change from one finish to another. These changes in conditions were sufficient to call for a revision in the existing piece rates.

While a detailed study was being made of the time required to do the work on the various units, a drying room was partitioned off from the rest of the finishing department. Steam coils to provide sufficient radiation, fans for controlling circulation, and humidity control apparatus, were installed. This reduced the previous drying time one-half and insured that every day was a "good drying day" for the finishing department.

By the time these changes had been completed, new production standards and new piece rates were ready to be put into effect. These new rates provided for operators and helpers earning about 20% more than their base pay and were guaranteed for one year, provided no change was made in the method of doing the work. As a consequence, no trouble was experienced in getting them accepted.

The final step was to make an analysis and test for the amount of finishing materials actually required for various products. An allowance was made to cover variations, definite standards were set, and a bonus was paid to operators for any savings they might make in quantities of finishing materials used, provided the quality of the product was maintained.

The results from this work, in reduced cost and increased output, are revealed in the accompanying tables which show comparative labor-material costs.

In addition to the substantial savings which were secured, the concern saved a capital investment in plant extension and equipment amounting to $22,000, or a fixed annual charge of about $2,500. This experience shows the value of a check up on existing equipment in any cost reduction plans, and will interest other plant managers under today's difficult conditions.

LABOR COSTS FOR FINISHING	Old Conditions and Rates	New Conditions and Rates	Increase or Decrease
Time, 100 units	6.5 hrs.	2.2 hrs.	66% Decrease
Daily output, pieces	138	408	195% Increase
Hourly earnings	$ .40	$ .46	15% Increase
Labor cost, 100 units	$2.60	$1.58	39% Decrease
Factory cost, 100 units	$4.68	$2.27	50% Decrease

MATERIAL COSTS FOR FINISHING	Spraying No Bonus	Spraying With Bonus
Material used	1½ gal.	1½ gal.
Area covered	753 sq.ft.	815 sq.ft.
Pieces covered	252	275
Material cost, 100 pieces	$.804	$.738

Marietta Paint & Color Co.

Effective immediately, we are announcing the appointment of J. M. Dahlquist as Industrial sales representative of this Company in Western Pennsylvania and Northern New York.

Mr. Dahlquist has had a wide experience over a long period in the manufacture and sale of product finishes. For many years he was industrial representative of the Grand Rapids Varnish Corporation and, for the last two years, Mr. Dahlquist has been in full charge of finishing at the Angelus Furniture Mfg. Co., Los Angeles, Calif. Mr. Dahlquist will make his headquarters at Jamestown, N. Y., where he enjoys a wide acquaintance.

Walnut Cabinet Finishing in Lacquer

by E. W. Bruce

Practical finisher reveals his methods of doing the bleaching, sponging, staining, filling, sealing, lacquering, rubbing, and all intermediate cleaning, sanding and drying operations. He submits some notes on materials and air conditions, and explains what causes a finish to bloom, turn gray, bleed, orange peel, appear murky or muddy, crack, craze or "go bad" in general.

TO GET A GOOD FINISH on any kind of wood product or surface, correct and thorough drying must precede and follow every cleaning or "conditioning" and finishing operation, including final rubbing and polishing. For a high-grade finish it is absolutely necessary that the wood be properly seasoned and conditioned; otherwise, sooner or later, the finish will be damaged regardless of how good the finishing materials were, or how carefully they were applied. Usually the finishing department gets the blame when the finish is unsatisfactory or "goes bad."

Humidity and temperature are two very important factors that must be controlled during every drying period. It is a well known fact that the capacity of air to carry moisture is much greater when it is warm than when it is cool or cold. Experience has proved that the best drying condition of the atmosphere at any temperature is with a moisture content ranging from 35% to 50%, although good results have been obtained at lower and higher percentages of moisture content. Humidity is determined by a wet and dry bulb thermometer or a hygrodeik.

Let us assume that the finishing department is ideal for wood finishing, regardless of weather conditions outside. We will take up the finishing process for a walnut cabinet that is to be water stained, filled, lacquered and rubbed.

Bleaching, Sponging

Some parts may have to be bleached. I find a good bleaching compound can be made of 4-lbs. oxalic acid and 4-lbs. of hypophosphite of soda dissolved in one gallon of boiling water. Apply to the parts to be bleached while hot. In extremely difficult cases, follow this treatment (after the treated surface is dry) with the application of a second solution made of 4-lbs. of borax dissolved in one gallon of boiling water. When dry, and before sponging, sand lightly

with fine sandpaper—preferable No. 5/0.

Make your bleaching compounds fresh and apply while hot each time you use them.

Before sponging, all fine dust should be removed from the wood surface, using either a hand duster or a compressed air gun. Compressed air is much better because it does a more thorough job of cleaning, blowing the dust out of the surface pores and thereby giving the stain and filler a better chance to penetrate. Fine dust, left in the surface pores, will swell and clog the pores when the sponge water or stain is applied.

After dusting, sponge the surface lightly. I have found that a little glue added to the warm sponging water helps. There should not be enough glue to make a glue size, but enough to cause the raised fibers of the wood to dry stiff so they can be easily cut down with fine sandpaper. The sanding after sponging should be done carefully with fine sandpaper to avoid cutting too deep. Bear in mind that a good finish depends to a certain extent upon careful, even sanding with the right kind of sandpaper—from the first to the last sanding inclusive.

Staining

Before staining, dust or blow the dust off the surface with compressed air, as we previously did before sponging.

Staining is a very important operation and should proceed with all possible speed, and all staining should be as nearly uniform as possible. After staining, be sure the surface is thoroughly dry before wash-coating with shellac or sanding sealer. Unless it is thoroughly dry the moisture in the wood will be sealed in, to a certain degree, and will make its presence known sooner or later and mar the finish by causing spotting, blooming, or a murky effect.

After the wash coat is thoroughly dry, sand carefully with No. 5/0 or No. 6/0 sandpaper. Dust or blow the surface clean, taking care that the wood pores are free from dust before filling. Poor sanding by the workman, or the use of too coarse sandpaper, will cause the final finish to be cloudy or murky.

Filling

Filler is the main foundation of a wood finish. A filler made of the right materials, brushed in good, well padded and cleaned thoroughly, is absolutely necessary for a good smooth surface and for a high grade finish.

The best fillers are made of floated silex, pure linseed oil and japan drier; they should be thinned with V. M. & P. (Varnish Makers' and Painters') naphtha, or a naphtha free from grease. Cheap filler is poor economy. If the filler is short in oil, or has not been colored to the right shade or depth for the stained article, it will turn gray regardless of what kind of materials are used in the finishing. On the other hand, if

"You've got to have a pull," they told us . . .

"THEY" happened to be a manufacturer of phonograph records—not the usual kind of record but a newly-developed type made of a patented composition backed up with fibre paper. The composition made the paper curl and it was up to us to furnish the opposing "pull" that would keep the records flat. This we did by coating the back of each record with Egyptian Lacquer—a special type developed by our technical staff for just this purpose.

This is just one incident in the daily history of Egyptian Lacquer where our product is doing the job more efficiently and more economically.

Egyptian Lacquer has so many vital uses . . . so many unquestioned advantages . . . that every manufacturer ought to know our entire story to be able to judge where Egyptian fits into *his* story.

Probably our booklet, "Egyptian Lacquer Enamels" will interest you. Send for it. It will cost you nothing to read it. It may cost you a lot of business *not* to read it.

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THE EGYPTIAN LACQUER MFG. COMPANY
Please send a copy of your booklet "Egyptian Lacquer Enamels"
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THE EGYPTIAN LACQUER MFG. CO. ● 90 WEST STREET, NEW YORK

the filler contains too much oil it will not fill the pores properly; if it has been colored too dark for the stained article, it will present a "painty" appearance, thereby hiding or marring instead of enhancing the beauty of the wood grain.

Sealing-Lacquering

Ordinarily, fillers that are used under shellac and varnish can be used successfully under lacquer—provided a coat of shellac or sanding sealer is applied over the filler. Unless the filler is protected with a sealing coat of shellac or sealer, it will bleed or bleach and cause trouble in general. It is advisable to use a filler that is made especially for use under lacquer.

When the wood surface has been filled, it should be given 12 to 14 hours force drying, or from 24 to 36 hours time for ordinary air drying. If the filled surface has not been thoroughly cleaned it will appear "muddy." If the filler is not thoroughly dry before the application of a following coat, it is only a question of time until it will "bloom" and turn gray. Shellac should have from four to six hours to air dry, and sanding sealer from three to four hours to air dry. If a piece of work is not thoroughly dry, and is coated while "green," it is sure to cause trouble sooner or later.

Lacquer of improper consistency will give trouble. If too thin, it will not cover; if too heavy, it will present an orange peel effect and, under certain conditions, it may "bloom" or present a murky appearance—or it may check or craze.

For best results the average air-drying lacquer should be given at least four hours to dry between coats. Water and oil in the compressed air line will cause spotting and crawling. If a lacquered surface has not dried sufficiently before rubbing, in all probability it will blush or show murky.

Rubbing

After rubbing a lacquered wood surface with oil, it should be well cleaned, as oil will penetrate and give the surface a smoky appearance. Plenty of lubricants, (oil, water, or oil and kerosene) should be used in the rubbing operation; and care should be taken to avoid putting too much pressure on the rubbing block, or rubbing machine. Too much pressure scours or grinds the finish and does not leave the smooth polished effect that is desired.

Air Conditions

Temperature in the finishing room should never be below 70° F., and all finishing materials should be used at or near the same temperature as the finishing room. I have found that when trouble occurs it is seldom the fault of finishing materials. More often the

Try this

Alcohol-Resistant Lacquer

Priced for quantity production

ALCOHOL solutions, fruit acids, ammonia, submerging in water, and the usual tests for any good lacquer leave No. 6355 unblemished.

A true quality lacquer in every respect, yet it is priced for use on large scale production. No. 6355 has better body, tougher film and a crystal clearness. Sprays smoothly and rubs easily. Made in gloss and any degree of flatness.

Try five gallons at the drum price, returnable at our expense if you are not well satisfied.

JAMES B. DAY & CO.
CHICAGO

Enamel, Sealer, Lacquer,
Shellac, Stain, etc.

trouble is caused by carelessness, or unfavorable working conditions due to poor light and ventilation, or lack of suitable means for controlling humidity and temperature in the finishing room—or a combination of all of these conditions, and perhaps others.

Flock Finish

A NEW NOVELTY finish with an attractive suede-like effect is now available for finishing a wide range of products. Its application to surfaces is simple and economical, providing the necessary equipment is at hand. For doing this work on a productive basis the following equipment is suggested: 1) a special spray booth with exhaust blowers, 2) flock collecting bag for saving the excess flock, 3) an oil-and-water condenser, and 4) the special flock spray gun.

First, a thoroughly wet coat of pyroxylin adhesive is sprayed on the article with a standard spray gun in a separate booth. Then the work is passed on to the flock booth where the prepared surface is coated with flock. The adhesive stays wet and sticky for 15 minutes, allowing ample time to spray the flock. If for any reason the adhesive becomes set before applying the flock, a wet coat of special thinner (furnished by the adhesive manufacturer) can be sprayed on the adhesive to bring it back to its original state. After the application of flock, the work should air dry at least one hour before brushing or blowing off the surplus flock from the surface.

For general purposes the adhesive should be very elastic so that flexible articles may be finished and withstand a bending or forming test without destroying the final effect.

When finishing wood products, in order to get thorough adhesion, it is necessary to first seal the wood with a clear or pigmented lacquer sealer.

The flock manufacturers, especially those I have contacted, are in a position to match samples perfectly. Several grades of fineness are available in both the rayon and cotton flock, the cotton being most generally used. In recent tests of this finish on ladies' wood shoe heels, in comparison to suede leather, it was found to stand more abuse than leather. A few of the numerous items to which this finish can be applied with practical and attractive results include, in addition to ladies' wood shoe heels, metal and wood caskets, ladies' dress hangers, ladies' hat stands, cases for jewelry and silverware, and card tables.—J. E. GREENE. (Mfr's. Representative.)

Ault & Wiborg Corporation

R. J. Hazucha, who was recently placed by the Ault & Wiborg Corporation, of New York and Cincinnati, in charge of their Chicago District, brings to that office an unusual combination of practical and selling experience and acquaintance with the plating and finishing fraternity. Starting 26 years ago in the plating department of a well-known metal worker, he had worked up in six years to foreman's rank, and for ten years had charge of plating and finishing work in various large plants, so that he knows the game thoroughly. For the past ten years he has been selling lacquers and other finishing materials, and has rendered highly efficient service such as only one who is familiar with the requirements can offer. With the complete facilities of the Ault and Wiborg Corporation behind him, "Rudy" is already beginning to make things hum at his headquarters at 375 West Huron St., and is arranging to give special attention to unusual problems in this line.

Advertising Matter Removed

Finishing and Decorating

« Picture Frames »

by Jack London

Some of the Materials

Glue Size	Bronze Powders
Whiting	Shellac
Colored Clay	Alcohol
Water Colors	Lacquer
Oil Colors	Beeswax

Some of the Operations

Sizing	Burnishing
Sanding	Toning
Steelwooling	Glazing
Spraying	Antiquing
Wiping	Polychroming

IN THE FINISHING of picture frames, everyone concerned knows or should know that the chief elements which determine success or failure are the experience, skill, good judgment and artistic sense of the workmen, supplemented of course by the quality and uniformity of materials used, and general shop conditions. To tell how to do this work with any degree of exactness is about as difficult—and hopeless—as to try to tell a man how to paint a picture for the art galleries. What a man can get out of an article giving a general outline of the subject, supplemented by various specific suggestions and recommendations, depends largely upon his experience in finishing and upon his mental capacity and attitude at the time he reads the article. The author's capacity and ability are taxed in attempting to explain the details of such intricate and complicated work.

Wood mouldings for picture frames that are to receive high-class finishes of the metallic, polychrome or antique types, or reproductions of expensive hardwoods, are usually prepared by being given a light coat of very thin glue size, followed, when dry, with one or more coats of specially prepared whiting. The whiting is prepared by mixing it with cooked glue. It is important to use a high quality glue—for example, what is called commercially "rabbit glue," "fish glue" or the best "animal glue." I prefer to buy this glue in flake form rather than ground glue, because I believe the flake glue is less likely to be unclean or adulterated with inferior materials.

The dry glue should be soaked in cold water overnight (for example, 1-lb. of dry glue to one gallon of water). Cook this thoroughly-dissolved glue in a water-jacketed container, being careful to avoid overheating it. Stir it from time to time as it cooks and keep it warm after it is completely cooked. To this cooked glue, add whiting until the material is thick enough in consistency and white enough in color to cover properly.

The material should be well stirred so as to break up all lumps in the whiting. This stirring will cause the whiting to foam, but the foaming can be reduced by adding a few drops of denatured alcohol to the mixture.

A whiting-glue mixture will jell when it is cold, but by warming it up it will be ready for use again. Like cooked glue it should always be used warm; when it is cold or even when it is chilled, it hasn't the necessary adhesive qualities.

Applying the Whiting

Whiting can be applied in various ways; spraying it with a cup gun is recommended when practicable. I like the cup gun for several reasons, one being that when the gun is not in action the cup (with gun attached) can be set in a container of hot water to keep the whiting warm. A word of caution here: the whiting should be carefully strained through a suitable strainer to remove all lumps every time the spray cup is filled.

In some shops the long straight lengths of wood mouldings are put through a machine which coats them with whiting and removes the excess thickness of material with steel dies shaped to the profile of the moulding. Short lengths and curved or circular shaped mouldings can be treated with a profile die in the hands of a skillful workman.

In other shops the steel die scraping or profile treatment is dispensed with, the work of a skillful sprayer or machine being relied upon to lay on a uniform thickness of whiting. One or two or more coats of whiting can be applied—as in using any other finishing material. The last coat must be thoroughly dry before it is smoothed (if necessary) by sanding or steelwooling.

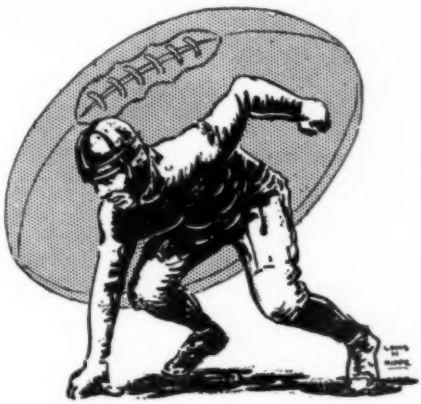
Discovering Cracks

Sometimes, after the whiting has thoroughly dried, cracks appear in the surface. These may escape notice unless one wets a bit of cotton in alcohol and draws the wet cotton along the surface. If any cracks are present, this treatment will immediately make them visible to the naked eye. Cracks will need to be cut out and patched with a repair putty or repair whiting made up similar to the original whiting-and-glue mixture. If cracks are frequent, the formula or materials or method used may need to be changed to obtain improvement in the work.

Colored Clay for Burnishing

After the final coat of whiting is thoroughly dry and in satisfactory condition, the next operation is to apply a coat of red or blue burnishing clay to whatever surfaces are to be burnished. This clay furnishes the proper background or foundation for a satisfactory burnish. More room for trouble lies in this operation than one might suspect. If the clay contains too much glue it will not burnish easily. Clay for this work comes in 1-lb. jars and up to 100-lb. kegs; it is not ready for use, but must be mixed with glue before being applied. Only a small amount should be mixed at one time, as when the glue is mixed with clay it has a tendency to ferment after setting for several days.

The clay in the supply containers should be kept wet with water to prevent it from becoming so hard and dry and caked that a workman has to spend extra time in breaking some loose from the container



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ROCKFORD, ILLINOIS

and then conditioning it for service.

A typical formula for the preparation of red or blue clay to be brushed or sprayed on (like paint) is as follows:

Clay	1-lb.
Warm Water	1½-lb.
Cooked Glue	1-lb.
Denatured Alcohol	1-oz.

The cooked glue should be made up in the proportion of about ¼-lb. of glue to ¾-lb. of water, soaked overnight and cooked in a double boiler until dissolved. This formula may need to be changed slightly to put the material in the best condition for service at the time it is used. Experience and good judgment are essential here —and in fact all along the line. Put the clay into a suitable container (for example, a gallon can), pour in warm water and mix thoroughly. Add the glue a little at a time, stirring it constantly. Add the alcohol last; this will destroy all bubbles in the clay. This clay should be applied the same as the whiting, especially in reference to keeping it warm. A better burnish will be obtained if two coats of clay are applied. The red clay will be a dark brick red when it is sprayed on, and will dry to a dull rose color.

The blue will dry to a sort of pale flat blue. The color coat should dry thoroughly before the bronze is applied.

Bronze Powders

The bronze powder may be silver, gold or russet in color. The carrying vehicle for the burnishing bronze will consist of a thin glue size (for example, made like the glue size for whiting, and thinned with three parts of hot water). For small jobs I suggest ¼-pint of glue size thinned with ¾-pint of water. To three teaspoonfuls of bronze powder, add enough denatured alcohol to form a thick paste, and to this add the carrying vehicle (glue size). Care should be taken to avoid getting the glue size too strong or thick with glue, as this would make it very difficult to burnish the bronze. If the glue size is too strong, it can be diluted by adding more hot water. Bronze in liquid requires frequent stirring to keep it up in the liquid, as bronzes are heavy materials and settle easily.

Burnishing

The bronze must be absolutely dry before it will take a burnish. The burnishing of picture frame mouldings only takes in the high places; these should be expertly treated, before burnishing, by receiving one or two strokes with a clean rag that has been lightly rubbed a very few times over a lump of beeswax. The rag must not become waxy (not enough wax on the rag to be seen by the naked eye) as this would cause too much wax to be put on the bronze surface.

The burnishing tool is a smoothly rounded, curved piece of agate mounted at the small end of a straight handle 6 or 7-in. long. This agate should be kept highly polished. A used stone is much better than a new one. A new stone requires a lot of rubbing down and polishing with pumice stone and water on a leather pad before it is really fit to do a good burnishing job. Burnishing should be done expertly and skillfully by hand. Machine burnishing has a tendency to "burn" the bronze.

Lacquering

The burnish should not be touched by the hands as sweat or oil from the hands will tarnish it—and it will be necessary to burnish these spots again. In fact, at no station along the line should a workman's hands come into contact with the surface of coatings being applied to the moulding. The lacquer should be clear or water white and it should be applied reasonably thin—preferably by spraying. In some cases the lacquer will need to be thinned as much as 50/50 with lacquer thinner. It all depends upon the consistency of the lacquer as purchased. The burnish should be lacquered as soon as possible, as this helps to hold its polished luster without danger of something going wrong in the meantime.

Now the mouldings or picture frames are ready for toning, glazing or antiquing—or they can be put away to wait for orders designating what final finish treatment they are to receive.

Italian Red and Gold

To produce an Italian red rubbed finish after the gold bronze is applied, take a piece of steel-wool and wipe off the spots that are to be burnished; this will leave about half of the gold bronze on the high spots, letting the red clay show through the gold. When the gold is thoroughly dry, burnish and lacquer. I might add here that when it is known beforehand that the clay surface is to be subjected to rubbing, as just mentioned, it should be given a very thin coat of shellac before the bronze is applied. This will give the clay some needed protection and thereby avoid the possibility of rubbing through the colored clay and exposing some of the whiting underneath.

Glazing, Antiquing

Any one of several finishes may be applied to the bronzed surface to give an antique, shaded, glazed or other special effect. Many special finishes are developed and used from time to time, according to what happens to be in style or in demand at the moment.

A typical formula for an antiquing color, or what some may call a glazing or toning color is as follows:

Chrome green (dark)	(teaspoonfuls)	3
Van Dyke brown	"	2
Lampblack	"	2
Turpentine	(pints)	1
Linseed oil (boiled)	"	1
Japan drier	a few drops	

This should be coated over the entire moulding; when it starts to set, wipe off the high places with

FINISHES

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a clean rag. Go over the rest of the moulding and take off all excess glaze that is not needed.

Italian Polychrome

After the red clay has dried, the mouldings are laid out flat with the tops up, side by side. Mix up water colors in the shading gun. Green and blue are suggested. Shade the green across the moulding about every 3-ft. for its entire length. Next, shade the blue across the mouldings between the lines of green. This will give green at the end; then a 1½-ft. strip of blue, a 1½-ft. strip of green, and so on. This color should be allowed to dry thoroughly (possibly two or three hours) before applying the bronze. The bronze (gold bronze) is wiped with steelwool. The colors and red clay should show through, leaving about one half the bronze on the high places. These water colors will burnish the same as the red clay and bronze. This makes a fine antique finish. After the frame is lacquered and dry, glaze with Van Dyke brown, and dust with rottenstone.

A good finisher can find a hundred different ways of producing antique finishes by changing his bronzes and glazes and using different glazes; also by stippling, mottling and striping. All this depends upon the initiative of the finisher.

Changes at Hilo Varnish

Everett J. Cole has resigned as Industrial Sales Manager, Secretary and Director of Hilo Varnish Corporation (Brooklyn, N. Y.) to go in business with his brother.

Carl J. Schumann, President, has taken over the direction of industrial sales.

Leonard W. Brustman and Andrew E. Lauchaire have been appointed Assistant Industrial Sales Managers.

Joseph Mattiello who has had general supervision over all Hilo Laboratories has been appointed Technical Director.

A. P. & V. M. A. Correction

Permit me to correct an error in the announcement of the coming conventions of the paint and varnish industry which appears on page 24 of INDUSTRIAL FINISHING for September, 1933.

The offices of the two associations have not been located in New York since 1931, but are located at 2201 New York Ave., N.W., Washington, D.C.—R. W. Emerson.

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Casein as Filler?

WE BELIEVE you have been studying closely the method of sealing or filling wood by means of casein. We were wondering if you have any information on the subject which you would care to pass on to us? We are deeply interested in knowing how casein as a sealer compares with other fillers, and if the pure casein is used or whether it is a composition in which casein is one ingredient.—C. & O. Co. (Supplies for Furn. Mfrs.)

We have supplied a finishing product to the trade for a considerable length of time. The principal ingredient is casein. There are, of course, other ingredients which are essential in order to bring to the front the real properties wanted. Casein in itself is insoluble and unless chemicals are used that will properly peptize the proteins, the effectiveness of casein as a sealer or finishing material would be lost.

We have always gone on the theory that the less the general buyer knew about the makeup of any product which we manufacture and sell, the better it would be for us.—Monite Waterproof Glue Co.

Casein is being used in larger quantities as a sealer and filler for wood in preparation for finishing. It is generally used with other ingredients for the best possible results. Casein itself has long been familiar in the processing of coated papers as a binder in textile and in numerous other lines.

The Perkins formulas are very simple to prepare; the manufacturer simply adds water and then cooks the solution and uses it either warm or cold as the work demands. These sizes are used in preparing thin plywood faces to minimize staining as well as being used on work such as ten-pin, bowling balls, piano hammers, baseball bats, etc. Many of these brands that we sell we later find are used as trade secrets; however, we are glad to advise you that there is such a field for this product and it is apparently qualifying to be of an actual value to this class of trade.—Perkins Glue Co.

Casein is used with other ingredients as a filler for wood in preparation for finishing. The usual and better known solutions of casein are not at all suitable for such use because lacquer does not hold on them and they have a tendency to "burn up" an enamel or oil varnish by saponification.

We have done some beautiful jobs with casein fillers and have even used it successfully as a lacquer undercoater. In this case the lacquer does not bleed into the casein film, the finished surface is smoother and less lacquer need be used to get the same surface. One concern has recently been granted a patent on the use of tri-acetin in the lacquer as well as in the casein solution to act as a mutual bonding agent; however, the products they have put out do not show any advantages for this material in our opinion. The main trick in using casein is to have the solution slightly on the acid side, but we cannot divulge this method of making such solutions without giving you trade secrets that have taken years of research to learn.—Henning Glue Co.

We can not say that casein is regularly used as a sealer or filler for wood. Its merit for this purpose has been proved experimentally, and quantity use has been made in one or two instances, but for one reason or another, the use has not been commercially developed. The chief objection is that casein must always be in a water solution and, as you probably know, it only takes a small

Questions «Answers

percentage of water to raise the grain of wood. Users have concluded that the expense of dealing with the raised grain more than balances the saving and other advantages of a casein sealer.

As you know, in furniture finishing an oil paste filler is used on many types of woods. It is not satisfactory to follow this with a priming coat of a casein sealer because of the lack of harmony between the oil paste filler and the casein solution, which results in spotting and whitening.

You may be interested to know that a casein primer or sealer acts exceedingly well under lacquer, the two materials reacting favorably together. There would be a large field for a casein sealer on the types of wood which do not require paste fillers were it not for the fact that, as already stated, the water in the casein solution has a tendency to raise the grain of the wood.—The Casein Mfg. Co. of America, Inc.

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Snapfasteners, Hairpins

CAN YOU furnish me with information on the subject of lacquering large quantities of small metal objects, like snapfasteners, hairpins, safety pins, bobbypins, etc. on such features as follows?

1) Are small metal items such as the aforementioned, which should retain their coating under continual usage, lacquered or enameled?

2) What is the substance used for that process on metal?

3) What is the method of applying same to large quantities of small metal objects which must be rapid, cheap and turn out a good job?

4) Is lacquering of big quantities of small metal objects cheaper than nickel plating, buffing excluded?

5) Are there textbooks or other information procurable, explaining this process in detail, stating the necessary machinery required,

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giving cost estimates on various objects?

I am going to manufacture a small metal article in the near future, and am now trying to ascertain the possible manufacturing ways and costs, and any helpful information you can give me in this respect will be greatly appreciated.—J. P. K.

There are two generally used methods of finishing small metal objects, like snapfasteners, hairpins, safety pins, bobbypins, etc. One of these systems makes use of loading a large quantity of these small articles into a tumbling barrel, then putting in a small quantity of a tumbling enamel, after which the barrel is rotated until the articles are completely coated. Usually, the articles are then spread out on wire mesh trays and are baked in a baking oven. The second system generally employed, often makes use of an open end tumbling barrel, set at an angle (See May I.F., page 12) into which a considerable quantity of the articles is loaded, and as the tumbling barrel revolves, the finishing material is sprayed on to the articles from a spray gun. In this case quick air-drying lacquers are customarily used.

Nitrocellulose lacquers are not so successful for tumbling, without the use of the spraying method, for the reason that one coat dissolves the preceding coat. Baking enamels are usually used for the dipping and tumbling, or straight tumbling operation.—M. J. P. (With Finish Mfr.)

Snapfasteners are rolled one way, hairpins another, and safety pins are dipped.

1) Usually these small items are finished with a baking enamel, although lacquer is sometimes used for specific reasons.

2) Usually the finishing material is black baking japan; sometimes colored baking enamels, formulated for tumbling; other times lacquers formulated to be used with equipment available.

3) Tumbling or rolling is generally the method of application, followed by baking.

4) No.

5) We know of none that are really up to date.

If J. P. K. will send us a sample of the article he proposes making we will be glad to make recommendations for methods, equipment and materials to be used in finishing same.—A. B. Laboratories.

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Marbleized Pyralin

A new development in pyroxylin plastic, which makes it suitable for certain phases of decoration and construction work and which will permit the material to be used even in matching marble, is known as Marbleized Pyralin. The method of manufacture is by a patented process involving the use of color filters. By means of these, the exact likeness of a fine slab of marble is reproduced on a photographic film, which is then transferred to a sheet of transparent pyralin, so that the detailed depths and true colorings of the slab are fully preserved. The back of this sheet is then sprayed to make it opaque or translucent, as desired. Any color can be used. The sheet of pyralin with its marble-like impression is then securely laminated between the two pieces of glass by means of heat and pressure. The finished material looks exactly like quarried marble.

A large use has already been found for it in the exterior and interior treatment of store and building fronts, soda bars, shower-bath rooms, wall panelings, and other places where decorative marble has heretofore been used.

Another interesting characteristic of the material is that, by means of it, it is possible to perfectly match the grains of one slab of material with those of another. It can also be used in repair work and it is claimed that its adaptability for this gives it a very wide field, because it will not deteriorate with age and use. The edges of Marbleized Pyralin may be beveled and rounded. Almost any edge treatment is possible.

Stock colors are available, but any color or grain can be produced upon request. Some of the attractive shades now offered are Verdi Green, Verdi Antique, Red Lavonto, Black and Gold, Grec-Rose, Sky Rose, and Fleuri-Jaune.

It is announced by the Du Pont Co. that The Indestructo Glass Corporation of New York City will market the product.

What's New « «

Rotary Spray Outfit

A line of small rotary spray finishing machines, such as that shown here, has been developed by The DeVilbiss Co., Toledo, Ohio, for rapid spray finishing of small articles. The turntable with its spindles to support and rotate articles being sprayed, the exhaust chamber and a front apron are supported on a stand

Small articles to be sprayed are mounted on revolving spindles of the turntable.

which is adjustable for height. Production per hour on small articles ranges from 1000 to 3500. These machines are offered in several sizes—with tables 24, 30, 36 or 42-ins. in diameter, and 18 to 48 spindles.

Automatic loading and unloading mechanism may be supplied if desired. This may be coordinated with a conveyor system, thus eliminating the necessity of an operator except for occasional inspection, or refilling the material tank. These machines can be equipped for either manual or automatic spray gun operation.

Wood Poker Chips

AN INEXPENSIVE dip coat of a cheap sealer is advantageous in making the final white or colored coat stand out. Since wooden poker chips are nearly all end grain, this dip coat also serves to drive the air out of the wood, preventing trouble.

For the white or colored coat, automatic spray equipment gives best and most economical results. If lacquer enamel is used, it is necessary to employ a special material with extra good hiding quality in order to get the requisite whiteness in one coat. The chips may be spread out on a wire screen when going through the spray application in order that the air from the spray gun will not blow the chips away. The air which does not hit the chips goes through the wire screen. Several layers of these screens may be used so that any excess finishing material that does not hit the top layer will be likely to fall on a chip on a lower layer.

In order to prevent the red or blue colors from rubbing off against the white chips, a clear top coat of some kind is absolutely necessary. Clear lacquer may be applied in the automatic spray, or the chips may be taken out and tumbled in wax.

The white or colored coats may be applied in an open-end, tilted, tumbling barrel, either by manual or automatic spray. In this case the spray should be applied so that when the material hits the chips it is almost dry; otherwise, trouble from sticking will occur.

As the wooden chips usually have rather sharp edges, a flexible material should be used so as to insure proper covering and adhesion to these portions of the chips.—I. S. B. (With Finish Mfr.)

Hardwood Caskets

A SUGGESTED finishing schedule for imitation walnut or mahogany finish on birch wood:

1) Spray stain; use a quick-drying, penetrating, non-grain-raising and non-mixing type. Air dry five hours.

2) Spray a wash sealer coat of white shellac or lacquer sealer. Air dry three hours.

3) Sand, using a fine grade paper that will cut free without leaving scratch marks.

4) Spray one coat of clear, "high-solid," gloss lacquer. Air dry three hours.

5) Spray one or more coats (depending upon quality of finish desired) of satin finish rubbing or polishing flat lacquer. For rubbing, allow last coat to dry over night. Give a light rubbing with oil and rotten-stone, which will produce that smooth velvet sheen usually expected for this class of work. This same procedure is recommended for antique maple furniture, using either the quick-drying, penetrating stains or water stain. If water stains are used, allow 12 hours drying time before applying sealer.—J. E. GREENE. (Mfr's. Representative.)

Valentine & Co. Meets Demand

The New England Branch of Valentine & Co. at Emily St., Cambridge, Mass., makers of famous Valspar finishes, have increased the personnel of their Industrial sales force by the additions of Mr. John P. Ryan and Mr. Thomas F. Fitzgerald, both of whom for years have contacted manufacturers of better products in New England.

Mr. A. W. McLean, also known to many manufacturers throughout this territory has taken over the reins as manager of this department. The increased demand by manufacturers for Valspar quality materials will now be even more quickly taken care of.

Industrial Finishing
MAGAZINE

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EDITORIAL

Practical Books

INDUSTRIAL FINISHING receives many inquiries for books of the latest practical information on finishing as applied to specific industries or products, or to the use of definite methods of application, or the employment of certain types of materials. On some of these subjects no books are available; on others one or more books are in print, the contents being entirely or partially satisfactory to some readers but disappointing to others.

Various reasons for this condition come to mind, the chief one perhaps being that progress in these lines is going on so rapidly that the contents of a text or reference book on the subject would soon become more or less out of date, or elementary in the light of later developments. Such books would need continual revision to keep them abreast of modern practice.

Through the period of one year the articles published in INDUSTRIAL FINISHING cover a wide range of subjects each of which is treated by an authority on the latest materials, equipment, supplies or methods. Bound volumes of the year's 12 issues make excellent reference books of convenient size, and in these the reader gets more than could be made available in the average published work of one author.

Company Names and Products

In many cases company names give no clue to the nature of the firm's business; in other instances the name, once exactly indicative of the products manufactured and sold, is now only partially effective in identifying or designating the firm's activities. But the fact that a company name is not descriptive of the firm's business is of no concern to progressive establishments. Take for example the single word FORD or WESTINGHOUSE; these names are well known not only in their local territory and in their respective industries, but to the general public the world over. Ask anyone why, and invariably the answer is ADVERTISING.

The names of those companies and their products are widely advertised, and used everywhere. They and thousands of others have continued advertising in good

times and in bad—never letting their industry and their public forget them—and they have continued to do volume business regardless of prevailing conditions. The difference between leaders and stragglers, between somebodies and nobodies, is PUBLICITY. Every firm's products need continuous publicity, and management should set aside something for advertising regardless of the present "volume of sales," the prevailing "statistics" or the "business outlook."

Exchange Information

INDUSTRIAL FINISHING offers unusual facilities for an exchange of information about everything that has to do with finishing. Problems and inquiries referred to INDUSTRIAL FINISHING are given prompt attention and either answered immediately from the editorial office or referred to individuals or concerns especially qualified to service them.

While some of the information so exchanged must be kept confidential, a certain amount of it can be and is revealed at the proper time, through the publication of articles, questions and answers, letters, editorials, news items and fillers.

Since finishing forms a part of the manufacturing process in several industries, INDUSTRIAL FINISHING affords finishers and executives in one industry an opportunity to compare notes on this phase of the work with men in other industries, thereby broadening their knowledge of all-round finishing technique.

Clean Hands

Since so much of the success in any kind of finishing depends directly upon having everything clean—materials, equipment, air and surfaces worked on—we must not lose sight of the fact that the finisher's hands and clothing should be clean also. Soiled hands or flying lint and loose dirt from clothing can cause trouble, delays or damage, all of which are objectionable and sometimes costly. Not infrequently the source of some mysterious trouble in connection with finishing is traceable to the personal uncleanliness of an employe either in the finishing department or in the department just ahead of finishing. Even the touch of clean hands renders some surfaces unfit for the type of finish required, until after something has been done to remove all traces of the contact.

Cold Stored Materials

Most finishers know it is not good practice to bring containers of finishing material from "cold storage" and begin using them immediately in a warm room. During cold weather it is well to have the reserve supply of material safely stored in a room as warm or almost as warm as the finishing room, so it will always be in condition for immediate use. Not only is the consistency of many finishing materials affected by the cold, but moisture may be condensed from the air inside partially filled cold metal containers when they are moved into a warm room.

As a matter of fact consideration should be given to all metal that comes in contact with finishing materials and the air with which these materials are sprayed. Compressed air lines, spray guns, metal racks and metal surfaces to be sprayed should be at comfort-

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Before you invest in any small portable spray painting equipment, we urge you to compare the advantages of the new Spra-more Junior with any other unit in its price class. Whatever your finishing job may be, the Spra-more Junior will give you more performance per dollar, year in and year out, than any other portable equipment in the field. Let us prove this statement. Send for details.

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able room temperature while any finishing work is in progress; otherwise trouble may occur.

Abrasive Paper

SILICON CARBIDE is a product of the electric furnace, and is used by different firms in the making of various abrasive papers, among them the waterproof type which makes such a valuable finishing sheet. Silicon carbide crystals are extremely hard and very sharp. It is not a simple matter, however, to make a first-class waterproof paper, even with the finest materials at hand. The paper may be the toughest, the adhesive may be the very best available, and the silicon carbide crystals may be properly processed and evenly graded as to size, but all of this will not result in a real good product, unless the workmanship be up to standard.

Some firms have developed special methods which enable them to place the crystals on the sheets in such manner as to take the fullest advantage of their natural sharpness. Each one of the grains on abrasive paper is a tiny cutting tool, and the depth of cut must agree as between the various grains if scratching is to be avoided.—J. E. H.

President of DeVilbiss Co.

Allen DeVilbiss Gutchess, President of The DeVilbiss Co., left September 15 for a month's business trip in England and France. While in London, Mr. Gutchess will attend the annual meeting of the Aerograph Co. Ltd., the DeVilbiss English affiliate. In Paris he will inspect the DeVilbiss branch office.

Clean Up and Paint Up

Fall Clean Up and Paint Up Campaigns to clean up, paint up and repair properties to "Get Ready for the

Indoor Months" in the more northern states, and to "Get Ready for Winter Visitors" in the more southern and Pacific Coast states, are getting into swing.

The general and ready acceptance of the Clean Up and Paint Up Campaign, is due to its conduct on such broad lines as to benefit all the civic and business interests in the typical American community. It has increased its activities successively over a period of 21 years.

Automatic Sprayer and Drier

Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill., has issued a 4-page bulletin which illustrates and describes the performance of several of its remarkable automatic aircoating and drying machines, wherein conveyors, turntables, automatic oscillating air guns, drying compartments, variable-speed motor drives, exhaust units, pressure containers, etc., are used effectively and economically. Features emphasized in big type: "62% Time Saving; 49% Material Saving; 10,000 Pieces per Hour; Both Sides Coated and Dried Automatically. . . ."

Reservoir of World Information About Chemistry

Scientific and technical documents increase on all sides in such numbers that it becomes more and more difficult to gather useful material for the benefit of inquirers. Many bodies deal permanently with the registering, classing and diffusion of such documents. Now the coordination of the respective activities of these institutions on an international basis has become necessary in order to permit them to carry on their work efficiently. As regards the province of chemistry a step was taken in 1932, in the scientific and technical sphere, by the entry into activity of the INTERNATIONAL OFFICE OF CHEMISTRY, created by international convention, and having its headquarters in Paris (49, Rue des Mathurins PARIS 8e).

Its first act was the summoning of a Conference of Experts. The work of this Conference of Experts led to the adoption of a certain number of recommendations fixing the three principal tasks of the Office:

1) To render accessible to all interested persons the already existing documentation, accumulated in the various centers, depots and collections.

2) To guide the chemical documentation which is in course of production, in such a way as to facilitate its registering, filing and diffusion, by methods found to be the best.

3) To insure coordination between the documentation relative to chemistry and that concerning other scientific knowledge in the field of international documentation.

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